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SPEC FILE

The PT-DS20K is not equipped with a lens.

Product Number : PT-**DS20K**

Product Name : 3-Chip DLP™ Projector

As of May 2012. Specifications and appearance are subject to change without notice.

SFD12M006

Specifications

Main unit

Power supply		200 – 240 V AC, 12 A, 50/60 Hz (3-wire single-phase)
Power consumption		2,300 W (2,350 VA) (0.3 W with STANDBY MODE set to ECO.*1 9 W with STANDBY MODE set to NORMAL.), max. 7,848 BTU (without light output: 7,585 BTU)
DLP™ chip	Panel size	24.1 mm (0.95 inches) diagonal (4:3 aspect ratio)
	Display method	DLP™ chip × 3 (R, G, B), DLP™ projection system
	Pixels	1,470,000 (1,400 × 1,050) × 3, total of 4,410,000 pixels
Lens		Optional powered zoom/focus lenses
Lamp		465 W UHM lamps (× 4) (four lamp system)
Screen size		1.78–15.24 m (70 – 600 inches) (1.78–7.62 m (70 – 300 inches) with the ET-D75LE50), 4:3 aspect ratio
Brightness*2		20,000 lumens (four lamp)
Center-to-corner uniformity*2		90%
Contrast*2		10,000:1 (full on/full off, in dynamic iris 3 mode)
Resolution		1,400 × 1,050 pixels (Input signals that exceed this resolution will be converted to 1,400 × 1,050 pixels.)
Scanning frequency	SDI	Dual-link HD-SDI signal (RGB 4:4:4 12-bit/10-bit): SMPTE ST 372 compliant: 1080/50i, 1080/60i, 1080/25p, 1080/24p, 1080/24sF, 1080/30p, Dual-link HD-SDI signal (X´Y´Z´ 4:4:4 12-bit): SMPTE ST 372 compliant: 2048 × 1080/24p, 2048 × 1080/24sF, 3G-SDI signal (RGB 4:4:4 12-bit/10-bit): SMPTE ST 424 compliant: 1080/50i, 1080/60i, 1080/25p, 1080/24p, 1080/24sF, 1080/30p, 3G-SDI signal (YP_BP_R 4:2:2 10-bit): SMPTE ST 424 compliant: 1080/50p, 1080/60p, HD-SDI signal (YP_BP_R 4:2:2 10-bit): SMPTE ST 292 compliant: 720/50p, 720/60p, 1035/60i, 1080/50i, 1080/60i, 1080/25p, 1080/24p, 1080/24sF, 1080/30p, SD-SDI signal (YC_BC_R 4:2:2 10-bit): SMPTE ST 259 compliant: 480i, 576i
	HDMI/DVI-D	480p, 576p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/24p, 1080/24sF, 1080/25p, 1080/30p, 1080/60p, 1080/50p, VGA (640 × 480)–WUXGA (1,920 × 1,200), compatible with non-interlaced signals only, dot clock: 25–162 MHz
	RGB	Horizontal: 15 – 100 kHz, vertical: 24 – 120 Hz, dot clock: 162 MHz or less
	YP_BP_R (YC_BC_R)	480i (525i): f_H 15.75 kHz; f_V 60 Hz, 576i (625i): f_H 15.63 kHz; f_V 50 Hz, 480p (525p): f_H 31.50 kHz; f_V 60 Hz, 576p (625p): f_H 31.25 kHz; f_V 50 Hz, 720 (750)/60p: f_H 45.00 kHz; f_V 60 Hz, 720 (750)/50p: f_H 37.50 kHz; f_V 50 Hz, 1035/60i: f_H 33.75 kHz; f_V 60 Hz, 1080 (1125)/60i: f_H 33.75 kHz; f_V 60 Hz, 1080 (1125)/50i: f_H 28.13 kHz; f_V 50 Hz, 1080/25p: f_H 28.13 kHz; f_V 25 Hz, 1080/24p: f_H 27.00 kHz; f_V 24 Hz, 1080/24sF: f_H 27.00 kHz; f_V 48 Hz, 1080/30p: f_H 33.75 kHz; f_V 30 Hz, 1080/60p: f_H 67.50 kHz; f_V 60 Hz, 1080/50p: f_H 56.25 kHz; f_V 50 Hz
	Video/S-Video	f_H: 15.75 kHz, f_V: 60 Hz [NTSC/NTSC4.43/PAL-M/PAL60] f_H: 15.63 kHz, f_V: 50 Hz [PAL/PAL-N/SECAM]

Optical axis shift	Vertical	±50% (±40% with the ET-D75LE6) from center of screen, powered
	Horizontal	±30% (±20% with the ET-D75LE6) from center of screen, powered **NOTE: Optical axis shift function cannot be operated when used with the ET-D75LE50.**
Keystone correction range		Vertical ±40°, horizontal ±15° (vertical ±22° and horizontal ±15° with the ET-D75LE50, vertical ±28° and horizontal ±15° with the ET-D75LE6)
Keystone correction range when using the optional upgrade kit ET-UK20*3		Vertical ±45°, horizontal ±40° (vertical ±22° and horizontal ±15° with the ET-D75LE50, vertical ±28° and horizontal ±15° with the ET-D75LE6, vertical ±40° and horizontal ±40° with the ET-D75LE10/D75LE20)
Installation		Ceiling/floor, front/rear
Terminals	SDI IN 1	BNC × 1, Dual-link HD-SDI signal: SMPTE ST 372 compliant (Link-A) 3G-SDI signal: SMPTE ST 424 compliant HD-SDI signal: SMPTE ST 292 compliant SD-SDI signal: SMPTE ST 259 compliant
	SDI IN 2	BNC × 1, Dual-link HD-SDI signal: SMPTE ST 372 compliant (Link-B) HD-SDI signal: SMPTE ST 292 compliant SD-SDI signal: SMPTE ST 259 compliant
	HDMI IN	HDMI 19-pin × 1, Deep Color, compatible with HDCP, 480p, 576p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/24p, 1080/24sF, 1080/25p, 1080/30p, 1080/60p, 1080/50p VGA (640 × 480) – WUXGA*4 (1,920 × 1,200), dot clock: 25 MHz – 162 MHz **NOTE: Compatible with non-interlaced signals only.**
	DVI-D IN	DVI-D 24-pin × 1, DVI 1.0 compliant, HDCP compatible, for single link only 480p, 576p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/24p, 1080/24sF, 1080/25p, 1080/30p, 1080/60p, 1080/50p, VGA (640 × 480) – WUXGA*4 (1,920 × 1,200), dot clock: 25 MHz – 162 MHz **NOTE: Compatible with non-interlaced signals only.**
	RGB 1 IN	BNC × 5
	R, G, B	R: 0.7 Vp-p, 75 ohms, G: 0.7 Vp-p (G: 1.0 Vp-p for sync on G), 75 ohms, B: 0.7 Vp-p, 75 ohms HD, VD/SYNC: TTL, high impedance, positive/negative automatic **NOTE: SYNC/HD and VD terminals do not accept tri-level sync signals.**
	Y, P_B, P_R (Y, C_B, C_R)	Y: 1.0 Vp-p (including sync signal), P_B/P_R (C_B/C_R): 0.7 Vp-p, 75 ohms
	S-Video signal	Y: 1.0 Vp-p, C: 0.286 Vp-p, 75 ohms
	RGB 2 IN	D-sub HD 15-pin (female) × 1
	R, G, B	R: 0.7 Vp-p, 75 ohms, G: 0.7 Vp-p (G: 1.0 Vp-p for sync on G), 75 ohms, B: 0.7 Vp-p, 75 ohms HD, VD/SYNC: TTL, high impedance, positive/negative automatic **NOTE: SYNC/HD and VD terminals do not accept tri-level sync signals.**
	Y, P_B, P_R (Y, C_B, C_R)	Y: 1.0 Vp-p (including sync signal), P_B/P_R (C_B/C_R): 0.7 Vp-p, 75 ohms
	VIDEO IN	BNC × 1, 1.0 Vp-p, 75 ohms
	3D SYNC 1 IN/OUT	BNC × 1, 1.0 Vp-p, 75 ohms Input: TTL, high impedance. Output: TTL, max. 10 mA
	3D SYNC 2 OUT	BNC × 1, 1.0 Vp-p, 75 ohms, TTL, max. 10 mA
	SERIAL IN	D-sub 9-pin (female) × 1 for external control (RS-232C compliant)
	SERIAL OUT	D-sub 9-pin (male) × 1 for link control
	REMOTE 1 IN	M3 jack × 1 for wired remote control
	REMOTE 1 OUT	M3 jack × 1 for link control

	REMOTE 2 IN	D-sub 9-pin × 1 for external control (parallel)
	LAN	RJ-45 × 1 for network connection, 100Base-TX/10Base-T, compliant with PJLink™ (class 1)
Power cord length		3.0 m (9 ft 10 in)
Cabinet materials		Molded plastic
Dimensions (W × H × D):		620 × 291*5 × 800*6 mm
		(24-7/16 × 11-15/32*5 × 31-1/2*6 inches) (without lens)
Weight*7		Approx. 43 kg (94.8 lbs) (without lens)
Operation noise*2		49 dB (quad lamp operation)
Operating temperature		0°–45°C (32°–113°F)*8
Operating humidity		10%–80% (no condensation)

Remote control unit

Power supply	3 V DC (AA type battery × 2)
Operation range*9	Approx. 30 m (98 ft 5 in) when operated from directly in front of the signal receptor
Dimensions (W × H × D)	51 × 176 × 28 mm (2 × 6-15/16 × 1-3/32 inches)
Weight	Approx. 134 g (4.7 oz) (including batteries)

Supplied accessories

Power cord with security lock (× 1)
Wireless/wired remote control unit (× 1)
Batteries for remote control (AA type × 2)
Software CD-ROM (Logo Transfer Software, Multi Projector Monitoring & Control Software) (× 1)

Optional accessories

Zoom lens (1.0–1.2:1)	ET-D75LE6
Zoom lens (1.4–1.8:1)	ET-D75LE10
Zoom lens (1.8–2.6:1)	ET-D75LE20
Zoom lens (2.6–5.1:1)	ET-D75LE30
Zoom lens (5.0–8.0:1)	ET-D75LE40
Zoom lens (7.9–15.0:1)	ET-D75LE8
Fixed-focus lens (0.8:1)	ET-D75LE50
Lens motor cover	ET-D75MC1
Ceiling mount bracket	ET-PKD510H (for high ceilings)
	ET-PKD510S (for low ceilings)
Frame	ET-PFD510
Smoke cut filter	ET-SFR510
Upgrade kit	ET-UK20
Replacement lamp unit	ET-LAD510 (one bulb)
	ET-LAD510F (a set of four bulbs)
Replacement filter unit	ET-EMF510

Weights and dimensions shown are approximate. Specifications and appearance are subject to change without notice.

***1 When the standby mode is set to eco, network functions such as power on over the LAN network will not operate, and the serial output terminal cannot be used. Also, only certain commands can be received for external control using the serial terminal.**

***2 Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards.**

***3 Up to a total of ±55° during simultaneous horizontal and vertical correction.**

***4 WUXGA resolution is supported only when the signals are compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).**

***5 With legs at shortest position.**

***6 Excluding the optional lens.**

***7 Average value (excluding the optional lens). May differ depending on models.**

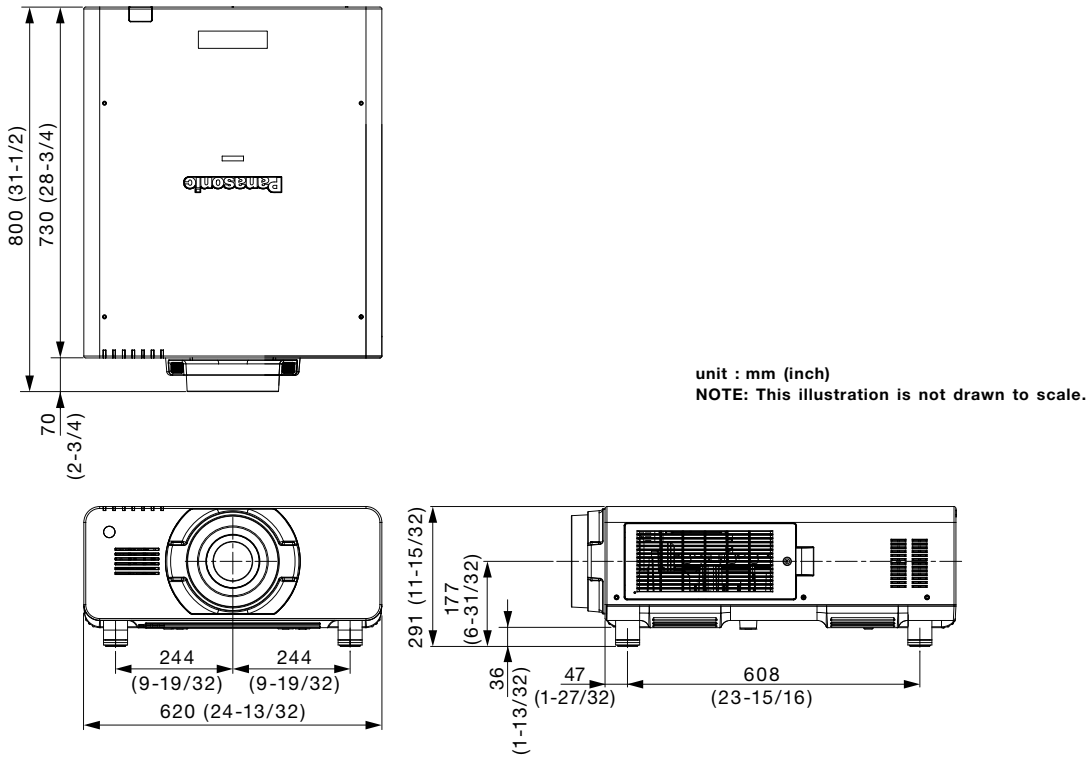
***8 The operating temperature range is 0 °C to 40 °C (32 °F to 104 °F) when the fan control is set to High Altitude mode (for altitudes from 1,400 m to 2,700 m (4,593 ft to 8,858 ft) above sea level). When the projector is used with the ET-SFR510 Smoke Cut Filter, the operating temperature range is 0 °C to 35 °C (32 °F to 95 °F), and the projector cannot be used in places at high altitude.**

***9 Operation range differs depending on environments.**

3-Chip DLP™ Projector

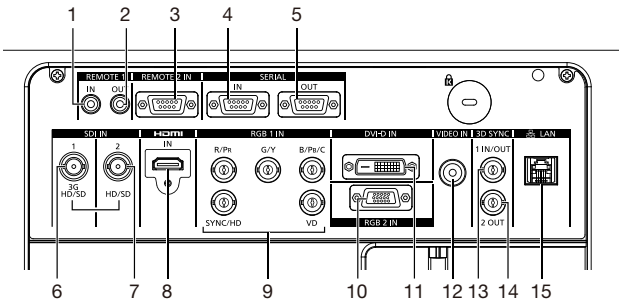
PT-**DS20K**

Dimensions



unit : mm (inch)
NOTE: This illustration is not drawn to scale.

Terminals

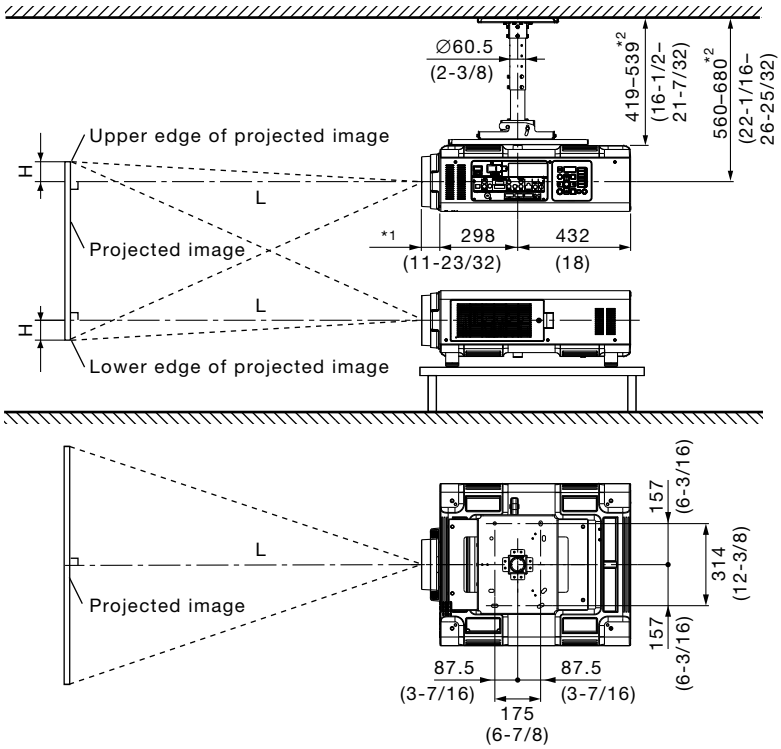


1 Remote 1 input
2 Remote 1 output
3 Remote 2 input
4 Serial input
5 Serial output
6 SDI 1 input
7 SDI 2 input
8 HDMI input
9 RGB 1 input
10 RGB 2 Input
11 DVI-D input
12 Video input
13 3D sync 1 input/output
14 3D sync 2 output
15 LAN connector

3-Chip DLP™ Projector

PT-**DS20K**

Standard setting-up position



***1 When the lens protrudes to the maximum.**
212 mm (8-11/32) with the ET-D75LE6
125 mm (4-29/32) with the ET-D75LE10
121 mm (4-3/4) with the ET-D75LE20
121 mm (4-3/4) with the ET-D75LE30
124 mm (4-7/8) with the ET-D75LE40
254 mm (10) with the ET-D75LE8
203 mm (8) with the ET-D75LE50

***2 Adjustable in 40 mm (1-9/16) steps.**

unit : mm (inch)

NOTE:

Illustrations show the projector installed using optional ceiling mount bracket ET-PKD510H and an optional lens.

This illustration is not drawn to scale.

Caution:
- All construction work should be done by a qualified technician.
- When mounting to the ceiling, use the special mounting bracket. To prevent the projector from swaying or dropping, attach the wire that is included with the projector between the mounting bracket and the ceiling.

Projection distance for 4:3 aspect ratio screen

(ET-D75LE6/D75LE10/D75LE20/D75LE30/D75LE40/D75LE8/D75LE50)

Unit: meters

Screen size (diagonal)	Distance to screen (L)													Height from the edge of screen to center of lens (H)		
	Zoom												Fixed-focus			
	ET-D75LE6 Zoom lens		ET-D75LE10 Zoom lens		ET-D75LE20 Zoom lens		ET-D75LE30 Zoom lens		ET-D75LE40 Zoom lens		ET-D75LE8 Zoom lens		ET-D75LE50 Fixed-focus lens	Zoom lenses		Fixed-focus lens
														Except ET-D75LE6	ET-D75LE6	
[m] / [in]	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.				
1.78 / 70	1.39	1.66	1.95	2.52	2.52	3.66	3.64	7.10	7.02	11.29	11.09	21.14	1.03	0.00 – 1.07	0.11 – 0.96	0.53
2.03 / 80	1.60	1.91	2.24	2.89	2.89	4.20	4.17	8.13	8.05	12.92	12.73	24.22	1.19	0.00 – 1.22	0.12 – 1.10	0.61
2.29 / 90	1.81	2.16	2.53	3.27	3.26	4.74	4.71	9.17	9.07	14.56	14.37	27.29	1.35	0.00 – 1.37	0.14 – 1.23	0.69
2.54 / 100	2.01	2.41	2.82	3.64	3.63	5.28	5.24	10.21	10.10	16.19	16.01	30.36	1.50	0.00 – 1.52	0.15 – 1.37	0.76
3.05 / 120	2.43	2.90	3.40	4.39	4.37	6.36	6.32	12.29	12.15	19.46	19.29	36.50	1.82	0.00 – 1.83	0.18 – 1.65	0.91
3.81 / 150	3.05	3.65	4.27	5.52	5.49	7.98	7.92	15.41	15.23	24.37	24.21	45.72	2.29	0.00 – 2.29	0.23 – 2.06	1.14
5.08 / 200	4.08	4.89	5.72	7.39	7.34	10.67	10.60	20.60	20.36	32.54	32.40	61.08	3.08	0.00 – 3.05	0.31 – 2.74	1.52
6.35 / 250	5.12	6.13	7.17	9.27	9.20	13.37	13.28	25.80	25.48	40.72	40.60	76.44	3.87	0.00 – 3.81	0.38 – 3.43	1.91
7.62 / 300	6.15	7.37	8.62	11.14	11.06	16.07	15.96	30.99	30.61	48.89	48.80	91.79	4.65	0.00 – 4.57	0.46 – 4.12	2.29
10.16 / 400	8.22	9.85	11.52	14.90	14.77	21.46	21.31	41.38	40.87	65.25	65.19	122.51	–	0.00 – 6.10	0.61 – 5.49	–
12.70 / 500	10.29	12.33	14.42	18.65	18.48	26.86	26.67	51.77	51.12	81.60	81.59	153.23	–	0.00 – 7.62	0.76 – 6.86	–
15.24 / 600	12.36	14.81	17.33	22.40	22.20	32.25	32.03	62.15	61.38	97.95	97.98	183.95	–	0.00 – 9.14	0.91 – 8.23	–

Unit: feet

Screen size (diagonal)	Distance to screen (L)													Height from the edge of screen to center of lens (H)		
	Zoom												Fixed-focus			
	ET-D75LE6 Zoom lens		ET-D75LE10 Zoom lens		ET-D75LE20 Zoom lens		ET-D75LE30 Zoom lens		ET-D75LE40 Zoom lens		ET-D75LE8 Zoom lens		ET-D75LE50 Fixed-focus lens	Zoom lenses		Fixed-focus lens
														Except ET-D75LE6	ET-D75LE6	
[m] / [in]	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.				
1.78 / 70	4.6	5.5	6.4	8.3	8.3	12.0	11.9	23.3	23.0	37.0	36.4	69.4	3.4	0.0 – 3.5	0.4 – 3.1	1.7
2.03 / 80	5.2	6.3	7.3	9.5	9.5	13.8	13.7	26.7	26.4	42.4	41.8	79.4	3.9	0.0 – 4.0	0.4 – 3.6	2.0
2.29 / 90	5.9	7.1	8.3	10.7	10.7	15.5	15.4	30.1	29.8	47.8	47.1	89.5	4.4	0.0 – 4.5	0.4 – 4.0	2.3
2.54 / 100	6.6	7.9	9.2	11.9	11.9	17.3	17.2	33.5	33.1	53.1	52.5	99.6	4.9	0.0 – 5.0	0.5 – 4.5	2.5
3.05 / 120	8.0	9.5	11.1	14.4	14.3	20.9	20.7	40.3	39.9	63.8	63.3	119.8	6.0	0.0 – 6.0	0.6 – 5.4	3.0
3.81 / 150	10.0	12.0	14.0	18.1	18.0	26.2	26.0	50.5	50.0	79.9	79.4	150.0	7.5	0.0 – 7.5	0.8 – 6.7	3.8
5.08 / 200	13.4	16.0	18.8	24.3	24.1	35.0	34.8	67.6	66.8	106.8	106.3	200.4	10.1	0.0 – 10.0	1.0 – 9.0	5.0
6.35 / 250	16.8	20.1	23.5	30.4	30.2	43.9	43.6	84.6	83.6	133.6	133.2	250.8	12.7	0.0 – 12.5	1.3 – 11.3	6.3
7.62 / 300	20.2	24.2	28.3	36.6	36.3	52.7	52.4	101.7	100.4	160.4	160.1	301.2	15.3	0.0 – 15.0	1.5 – 13.5	7.5
10.16 / 400	27.0	32.3	37.8	48.9	48.5	70.4	69.9	135.8	134.1	214.1	213.9	401.9	–	0.0 – 20.0	2.0 – 18.0	–
12.70 / 500	33.8	40.4	47.3	61.2	60.6	88.1	87.5	169.8	167.7	267.7	267.7	502.7	–	0.0 – 25.0	2.5 – 22.5	–
15.24 / 600	40.6	48.6	56.8	73.5	72.8	105.8	105.1	203.9	201.4	321.4	321.5	603.5	–	0.0 – 30.0	3.0 – 27.0	–

- **The value for L (distance to screen) varies slightly within ±5% depending on the zoom lens characteristics.**
- **At the shortest projection distance, the zoom lens characteristics may cause slight image distortion.**
- **When vertical keystone correction is used, the image is corrected in the direction that reduces its projected size.**

NOTE: When the ET-D75LE50 is mounted, the optical lens shift function cannot be used.

Calculation of the projection distance

For a screen size different from the above, use the equation below to calculate the projection distance.

Aspect ratio 4:3

Zoom lenses

ET-D75LE6	minimum	L (m) = (diagonal screen size in inches) × 0.0207 – 0.0566
	maximum	L (m) = (diagonal screen size in inches) × 0.0248 – 0.0736
ET-D75LE10	minimum	L (m) = (diagonal screen size in inches) × 0.0290 – 0.0857
	maximum	L (m) = (diagonal screen size in inches) × 0.0375 – 0.1085
ET-D75LE20	minimum	L (m) = (diagonal screen size in inches) × 0.0371 – 0.0832
	maximum	L (m) = (diagonal screen size in inches) × 0.0540 – 0.1162
ET-D75LE30	minimum	L (m) = (diagonal screen size in inches) × 0.0536 – 0.1131
	maximum	L (m) = (diagonal screen size in inches) × 0.1039 – 0.1765
ET-D75LE40	minimum	L (m) = (diagonal screen size in inches) × 0.1026 – 0.1577
	maximum	L (m) = (diagonal screen size in inches) × 0.1635 – 0.1615
ET-D75LE8	minimum	L (m) = (diagonal screen size in inches) × 0.1640 – 0.3862
	maximum	L (m) = (diagonal screen size in inches) × 0.3072 – 0.3598

Fixed-focus lens

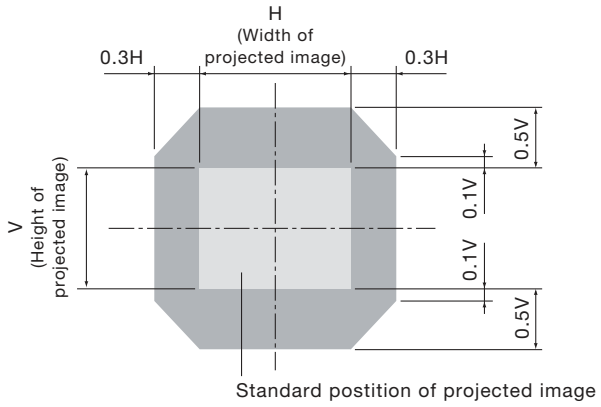
ET-D75LE50		L (m) = (diagonal screen size in inches) × 0.0158 – 0.0713

- **Distances calculated with the above equations will include slight deviations.**

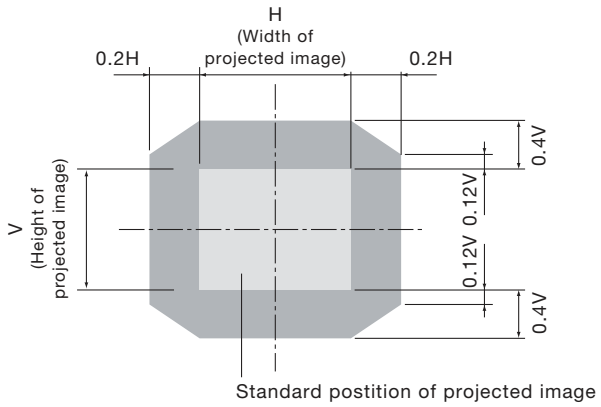
Shift range

Optical axis shift function allows to shift the position of a projected image as shown below.

• When the lens except the ET-D75LE6 is mounted



• When the ET-D75LE6 is mounted

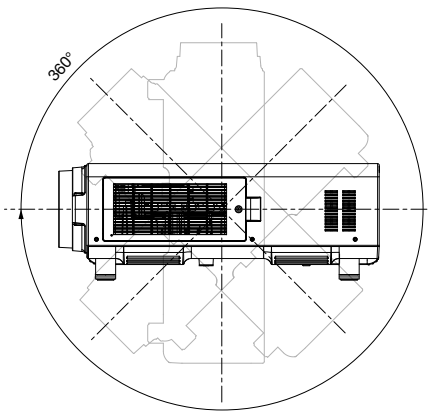


• Because the ET-D75LE50 is a fixed short-throw lens, the lens shift function cannot be used with it.

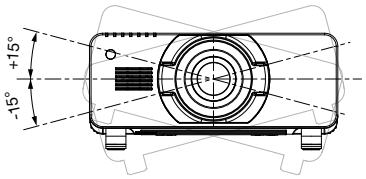
Installable angle

Install the projector at an angle within the range shown below.

• Vertical direction
The projector may be installed at a vertical angle of 360°.



• Horizontal direction
The projector may be installed at a horizontal angle of ±15°.



List of compatible signals

The signals that can be input to this projector are shown in the table below. Horizontal scanning frequencies of 15 kHz to 100 kHz, vertical scanning frequencies of 24 Hz to 120 Hz, and a dot clock of 162 MHz maximum can be input.

NOTE: The native resolution of this projector is 1,400 × 1,050 pixels. If the display resolution of the input signal is different from the native resolution, image compression or expansion will be used to convert the input signal to a level within the native resolution.

Display mode	Display resolution (dots)*1	Scanning frequency H (kHz)	Scanning frequency V (kHz)	Dot clock frequency (MHz)	Format
NTSC/NTSC4.43/PAL-M/PAL60	720 × 480i	15.7	59.9	–	VIDEO/S-VIDEO
PAL/PAL-N/SECAM	720 × 576i	15.6	50.0	–	
480i (525i)	720 × 480i	15.7	59.9	13.5	SDI/RGB/YC_BC_R
576i (625i)	720 × 576i	15.6	50.0	13.5	
480p (525p)	720 × 483	31.5	59.9	27.0	HDMI/DVI-D/
576p (625p)	720 × 576	31.3	50.0		RGB/YC_BC_R
720/60p	1280 × 720	45.0	60.0	74.3	SDI/HDMI/DVI-D/
720/50p		37.5	50.0		RGB/YP_BP_R
1080/60i	1920 × 1080i	33.8	60.0		
1080/50i		28.1	50.0		
1080/24p	1920 × 1080	27.0	24.0		
1080/24sF	1920 × 1080i				
1080/25p	1920 × 1080	28.1	25.0		
1080/30p		33.8	30.0		
1080/60p		67.5	60.0	148.5	SDI*2/HDMI/DVI-D/
1080/50p		56.3	50.0		RGB/YP_BP_R
2K/24p	2048 × 1080	27.0	24.0	74.3	SDI*3
2K/24sF					
VGA400	640 × 400	31.5	70.1	25.2	HDMI/DVI-D/RGB
		37.9	85.1	31.5	
VGA480	640 × 480	31.5	59.9	25.2	
		35.0	66.7	30.2	
		37.9	72.8	31.5	
		37.5	75.0	31.5	
		43.3	85.0	36.0	
SVGA	800 × 600	35.2	56.3	36.0	
		37.9	60.3	40.0	
		48.1	72.2	50.0	
		46.9	75.0	49.5	
		53.7	85.1	56.3	
MAC16	832 × 624	49.7	74.6	57.3	
XGA	1024 × 768	39.6	50.0	51.9	
		48.4	60.0	65.0	
		56.5	70.1	75.0	
		60.0	75.0	78.8	
		65.5	81.6	86.0	
		68.7	85.0	94.5	
		81.4	100.0	113.3	
		98.8	120.0	139.1	
MXGA	1152 × 864	53.7	60.0	81.6	
		64.0	71.2	94.2	
		67.5	74.9	108.0	
		76.7	85.0	121.5	
MAC21	1152 × 870	68.7	75.1	100.0	

***1 The "i" appearing after the resolution indicates an interlaced signal.**
***2 SDI 1 only.**
***3 For dual-link connection only.**

Display mode	Display resolution (dots)	Scanning frequency H (kHz)	Scanning frequency V (kHz)	Dot clock frequency (MHz)	Format
1280 × 720	1280 × 720	37.1	49.8	60.5	HDMI/DVI-D/RGB
		44.8	59.9	74.5	
		76.3	100.0	131.8	
		92.6	120.0	161.6	
1280 × 768	1280 × 768	39.6	49.9	65.3	
		47.8	59.9	79.5	
	1280 × 768*	47.4	60.0	68.3	
	1280 × 768	60.3	74.9	102.3	
		68.6	84.8	117.5	
1280 × 800	1280 × 800	41.3	50.0	68.0	
		49.7	59.8	83.5	
	1280 × 800*	49.3	59.9	71.0	
	1280 × 800	62.8	74.9	106.5	
		71.6	84.9	122.5	
MSXGA	1280 × 960	60.0	60.0	108.0	
SXGA	1280 × 1024	52.4	50.0	88.0	
		64.0	60.0	108.0	
		72.3		125.0	
		78.2		135.1	
		80.0	66.3	135.0	
		91.1	72.0	157.5	
1366×768	1280 × 768	47.7	75.0	85.5	
		39.6	85.0	69.0	
SXGA+	1400 × 1050	54.1	59.8	99.9	
		64.0	49.9	108.0	
		65.2	50.0	122.6	
		65.3	60.0	121.8	
		78.8		149.3	
		82.2	72.0	155.9	
WXGA+	1440 × 900	55.9	75.0	106.5	
		46.3	59.9	86.8	
UXGA60	1600 × 1200	75.0	49.9	162.0	
WSXGA+	1680 × 1050	65.3	60.0	146.3	
		54.1	50.0	119.5	
1920×1080	1920 × 1080	55.6	49.9	141.5	
	1920 × 1080*	66.6	59.9	138.5	
	1920 × 1080	67.2	60.0	173.0	RGB
WUXGA	1920 × 1200	61.8	49.9	158.3	HDMI/DVI-D/RGB
	1920 × 1200*	74.0	60.0	154.0	
	1920 × 1200	74.6	59.9	193.3	RGB

* **Compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).**

List of compatible 3D signals

The 3D signals that can be input to this projector are shown in the table below.

Display mode	Display resolution (dots)*1	Scanning frequency H (kHz)	Scanning frequency V (kHz)	Dot clock frequency (MHz)	HDMI Frame packing	HDMI Side by side*2	HDMI Top and bottom	DVI Side by side*2	DVI Top and bottom	DVI Line by line	DVI Frame sequential
720/60p	1280 × 720	45.0	60.0	74.3	Yes	Yes	Yes	Yes	Yes	Yes	–
720/50p		37.5	50.0	74.3							
1080/60i	1920 × 1080i	33.8	60.0	74.3	–		–			–	
1080/50i		28.1	50.0	74.3							
1080/24p	1920 × 1080	27.0	24.0	74.3	Yes		Yes				
1080/24sF	1920 × 1080i	27.0	24.0	74.3	–	–	–				
1080/25p	1920 × 1080	28.1	25.0	74.3							
1080/30p		33.8	30.0	74.3							
1080/60p		67.5	60.0	148.5		Yes	Yes				
1080/50p		56.3	50.0	148.5							
VGA480	640 × 480	31.5	59.9	25.2		–	–		–		
SVGA	800 × 600	37.9	60.3	40.0							
MAC16	832 × 624	49.7	74.6	57.3							
XGA	1024 × 768	39.6	50.0	51.9							
		48.4	60.0	65.0							
		81.4	100.0	113.3				–			Yes
		98.8	120.0	139.1							
MXGA	1152 × 864	53.7	60.0	81.6				Yes			–
1280 × 720	1280 × 720	37.1	49.8	60.5							
		44.8	59.9	74.5							
		76.3	100.0	131.8				–			Yes
		92.6	120.0	161.6							
1280 × 768	1280 × 768	39.6	49.9	65.3				Yes			–
		47.8	59.9	79.5							
	1280 × 768 *3	47.4	60.0	68.3							
1280 × 800	1280 × 800	41.3	50.0	68.0							
		49.7	59.8	83.5							
	1280 × 800 *3	49.3	59.9	71.0							
MSXGA	1280 × 960	60.0	60.0	108.0							
SXGA	1280 × 1024	52.4	50.0	88.0							
		64.0	60.0	108.0							
1366 × 768	1280 × 768	47.7	59.8	85.5							
		39.6	49.9	69.0							
SXGA+	1400 × 1050	54.1	50.0	99.9							
		64.0	60.0	108.0							
		65.2	60.0	122.6							
		65.3	60.0	121.8							
WXGA+	1440 × 900	55.9	59.9	106.5							
		46.3	49.9	86.8							
UXGA60	1600 × 1200	75.0	60.0	162.0							
WSXGA+	1680 × 1050	65.3	60.0	146.3							
		54.1	50.0	119.5							
1920 × 1080	1920 × 1080	55.6	49.9	141.5							
	1920 × 1080 *3	66.6	59.9	138.5							
WUXGA	1920 × 1200	61.8	49.9	158.3							
	1920 × 1200 *3	74.0	60.0	154.0						Yes	

***1 The "i" appearing after the resolution indicates an interlaced signal.**
***2 Compatible with half-resolution signals.**
***3 Compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).**

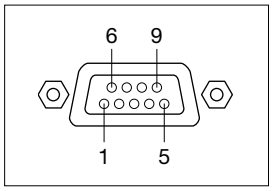
Display mode	Display resolution (dots)*1	Scanning frequency H (kHz)	Scanning frequency V (kHz)	Dot clock frequency (MHz)	RGB1/RGB2 Side by side*2	RGB1/RGB2 Top and bottom	RGB1/RGB2 Line by line	RGB1/RGB2 Frame sequential	SDI1/SDI2 Side by side*2	SDI1/SDI2 Top and bottom	SDI1/SDI2 Line by line	HDMI & DVI	RGB1 & RGB2	SDI1 & SDI2	3G-SDI Level B
												Simul-taneous	Simul-taneous	Simul-taneous	Simul-taneous
720/60p	1280 × 720	45.0	60.0	74.3	Yes	Yes	Yes	–	Yes	Yes	Yes	Yes	Yes	Yes	Yes*3
720/50p		37.5	50.0	74.3											
1080/60i	1920 × 1080i	33.8	60.0	74.3			–				–				
1080/50i		28.1	50.0	74.3											
1080/24p	1920 × 1080	27.0	24.0	74.3											
1080/24sF	1920 × 1080i	27.0	24.0	74.3											
1080/25p	1920 × 1080	28.1	25.0	74.3											
1080/30p		33.8	30.0	74.3											
1080/60p		67.5	60.0	148.5					Yes*3	Yes*3				–	–
1080/50p		56.3	50.0	148.5											
VGA480	640 × 480	31.5	59.9	25.2		–			–	–		–	–		
SVGA	800 × 600	37.9	60.3	40.0											
MAC16	832 × 624	49.7	74.6	57.3											
XGA	1024 × 768	39.6	50.0	51.9											
		48.4	60.0	65.0											
		81.4	100.0	113.3	–			Yes							
		98.8	120.0	139.1											
MXGA	1152 × 864	53.7	60.0	81.6	Yes			–							
1280 × 720	1280 × 720	37.1	49.8	60.5											
		44.8	59.9	74.5											
		76.3	100.0	131.8	–			Yes							
		92.6	120.0	161.6											
1280 × 768	1280 × 768	39.6	49.9	65.3	Yes			–							
		47.8	59.9	79.5											
	1280 × 768 *4	47.4	60.0	68.3											
1280 × 800	1280 × 800	41.3	50.0	68.0											
		49.7	59.8	83.5											
	1280 × 800 *4	49.3	59.9	71.0											
MSXGA	1280 × 960	60.0	60.0	108.0											
SXGA	1280 × 1024	52.4	50.0	88.0											
		64.0	60.0	108.0											
1366 × 768	1280 × 768	47.7	59.8	85.5											
		39.6	49.9	69.0											
SXGA+	1400 × 1050	54.1	50.0	99.9								Yes	Yes		
		64.0	60.0	108.0											
		65.2	60.0	122.6											
		65.3	60.0	121.8											
WXGA+	1440 × 900	55.9	59.9	106.5								–	–		
		46.3	49.9	86.8											
UXGA60	1600 × 1200	75.0	60.0	162.0											
WSXGA+	1680 × 1050	65.3	60.0	146.3											
		54.1	50.0	119.5											
1920 × 1080	1920 × 1080	55.6	49.9	141.5											
	1920 × 1080 *4	66.6	59.9	138.5											
WUXGA	1920 × 1200	61.8	49.9	158.3								Yes	Yes		
	1920 × 1200 *4	74.0	60.0	154.0			Yes								

***1 The "i" appearing after the resolution indicates an interlaced signal.**
***2 Compatible with half-resolution signals.**
***3 SDI 1 only.**
***4 Compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).**

Serial connector

The serial connector complies with RS-232C. To control the projector from a personal computer, commands must be input through communication software, based on the format and satisfying the communication conditions shown below.

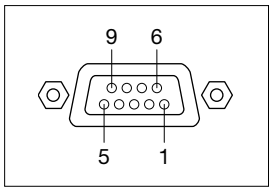
Pin assignments and signal names



D-sub 9-pin (female) Serial input

No.	Signal name	Description	No.	Signal name	Description
1	–	NC	6	–	NC
2	TXD	Send data	7	CTS	Connected internally
3	RXD	Receive data	8	RTS	Connected internally
4	–	Connected internally	9	–	NC
5	GND	Ground			

Pin assignments and signal names



D-sub 9-pin (male) Serial output

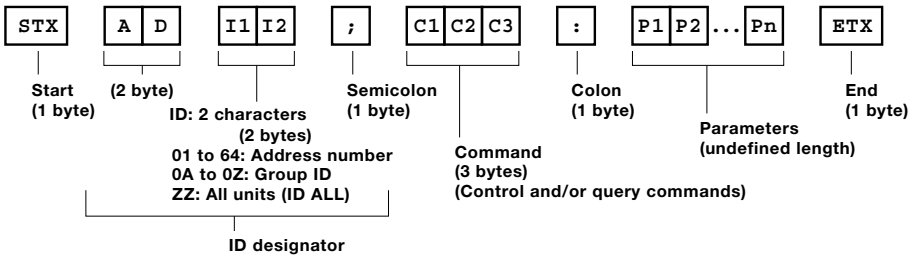
No.	Signal name	Description	No.	Signal name	Description
1	–	NC	6	–	NC
2	RXD	Receive data	7	RTS	Connected internally
3	TXD	Send data	8	CTS	Connected internally
4	–	Connected internally	9	–	NC
5	GND	Ground			

Communication conditions (factory setting)

Signal level	RS-232C-compliant
Synchronization method	Start-stop synchronization
Baud rate	9,600 bps
Parity	None
Character length	8 bits
Stop bit	1 bit
X parameter	None
S parameter	None

Basic format

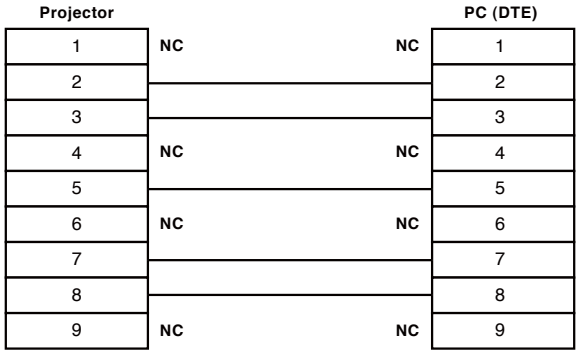
Transmission from the computer begins with STX, then the ID, command, parameter, and ETX are sent in this order. Add parameters according to the details of control.



CAUTION

- **It may not be possible to send or receive commands for about 10 to 60 seconds when the lamp is first turned on. If this occurs, wait for 60 seconds, then try sending or receiving again.**
- **When sending multiple commands, be sure to wait for at least 0.5 second after receiving a response from the projector before sending the next command.**
- **Additional time is sometimes required for response due to processing inside the projector. Set the time-out period for command response to 10 seconds or more.**
- **When using two or more units:**
  1) Set different IDs for each unit.
  2) Designate only one unit as RESPONSE (ID ALL) ON and the rest as RESPONSE (ID ALL) OFF.
  3) Each group should have only one RESPONSE (ID GROUP) ON and the rest should be RESPONSE (ID GROUP) OFF.

Cable specifications



Control commands

Command : Parameter	Function		Callback
PON	POWER (STANDBY)	Standby power on	PON
POF		Standby power off	POF
IIS:SD1	INPUT SELECT	SDI 1	IIS:SD1
IIS:SD2		SDI 2	IIS:SD2
IIS:HD1		HDMI	IIS:HD1
IIS:DVI		DVI	IIS:DVI
IIS:RG1		RGB 1	IIS:RG1
IIS:RG2		RGB 2	IIS:RG2
IIS:VID		Video	IIS:VID
LPM:0	LAMP SELECT	Quad (four lamps)	LPM:0
LPM:1		Lamp 1 + 4	LPM:1
LPM:2		Lamp 2 + 3	LPM:2
LPM:3		Dual (two lamps)	LPM:3
LPM:4		Lamp 1 + 2 + 3	LPM:4
LPM:5		Lamp 1 + 2 + 4	LPM:5
LPM:6		Lamp 1 + 3 + 4	LPM:6
LPM:7		Lamp 2 + 3 + 4	LPM:7
LPM:8		Triple (three lamps)	LPM:8
LPM:9		Lamp 1	LPM:9
LPM:10		Lamp 2	LPM:10
LPM:11		Lamp 3	LPM:11
LPM:12		Lamp 4	LPM:12
LPM:13		Single lamp	LPM:13
OSH:0	SHUTTER	Shutter off	OSH:0
OSH:1		Shutter on	OSH:1
OPP:0	P IN P SELECT	Off	OPP:0
OPP:1		User 1	OPP:1
OPP:2		User 2	OPP:2
OPP:3		User 3	OPP:3
OAS	AUTO SETUP		OAS
VPM:NAT	PICTURE MODE	Natural	VPM:NAT
VPM:STD		Standard	VPM:STD
VPM:DYN		Dynamic	VPM:DYN
VPM:CIN		Cinema	VPM:CIN
VPM:GRA		Graphic	VPM:GRA
VPM:DIC		DICOM	VPM:DIC
VXX:DLVI0=+00000	SYSTEM DAYLIGHT VIEW	Off	VXX:DLVI0=+00000
VXX:DLVI0=+00001		1	VXX:DLVI0=+00001
VXX:DLVI0=+00002		2	VXX:DLVI0=+00002
VXX:DLVI0=+00003		3	VXX:DLVI0=+00003
OTE:4	COLOR TEMPERATURE	User 1	OTE:4
OTE:9		User 2	OTE:9
OTE:10		Default	OTE:10
OTE: p1p2p3p4		3200 K – 9300 K (100 K steps)	OTE: p1p2p3p4
TSD:y1y2y3y4m1m2d1d2w	DATE	Date setting	TSD:y1y2y3y4m1m2d1d2w
TST:h1h2m1m2s1s2	TIME	Time setting	TST:h1h2m1m2s1s2
OOS:0	ON SCREEN	On-screen display off	OOS:0
OOS:1		On-screen display on	OOS:1

*** Do not send PON, POF, OSH, or OLP commands continuously in a short period of time. Doing so may burst the lamp or shorten the lamp replacement cycle.**

*** When a command that cannot be executed, the projector will send an ER401 command in reply.**

Status request commands

Command:Parameter	Function	Callback	Description
QPW	Main power status	000	Off
		001	On
QSH	Shutter function status	0	Off
		1	On
QFZ	Freeze function status	0	Off
		1	On
QIN	Input signal status	SD1	SDI 1
		SD2	SDI 2
		HD1	HDMI
		DVI	DVI
		RG1	RGB 1
		RG2	RGB 2
QOS		VID	Video
	On-screen display status	0	Off
QST		1	On
Q$L:1	Projector run time	p1p2p3p4p5	00000h–99999h
Q$L:2	Lamp 1 run time	p1p2p3p4	0000h–9999h
Q$L:3	Lamp 2 run time	p1p2p3p4	0000h–9999h
Q$L:4	Lamp 3 run time	p1p2p3p4	0000h–9999h
QSL	Lamp 4 run time	p1p2p3p4	0000h–9999h
	Lamp operation mode status	0	Quad (four lamps)
		1	Lamp 1 + 4
		2	Lamp 2 + 3
		3	Dual (two lamps)
		4	Lamp 1 + 2 + 3
		5	Lamp 1 + 2 + 4
		6	Lamp 1 + 3 + 4
		7	Lamp 2 + 3 + 4
		8	Triple (three lamps)
		9	Lamp 1
		10	Lamp 2
		11	Lamp 3
		12	Lamp 4
QPM		13	Single lamp
	Picture mode status	NAT	Natural
		STD	Standard
		DYN	Dynamic
		CIN	Cinema
		GRA	Graphic
QVX:DLVI0		DIC	DICOM
	System daylight view status	DLVI0=+00000	Off
		DLVI0=+00001	1
		DLVI0=+00002	2
QPP		DLVI0=+00003	3
	P in P status	0	Off
		1	User 1
		2	User 2
QTM:0		3	User 3
QTM:1	Temperature status	p1p2p3p4/p5p6p7p8*1	p0 = Intake air
QTM:2			p1 = Around lamp
QGD			p2 = Optics module
QGT	Date setting status	y1y2y3y4m1m2d1d2w	yyyymmdd (day of week)*2
	Time setting status	h1h2m1m2s1s2	hhmmss *3

*1 p1p2p3p4: Celsius (°C), p5p6p7p8: Fahrenheit (°F)

*2 Day of week: Monday = 1, Tuesday = 2, ... Sunday = 7

*3 Set the date and time to UTC (universal time coordinated).

* **When a wrong command is sent, the projector will send an ER401 or ER402 command in reply.**

Command example

To set the on-screen display off, send the command as shown below.

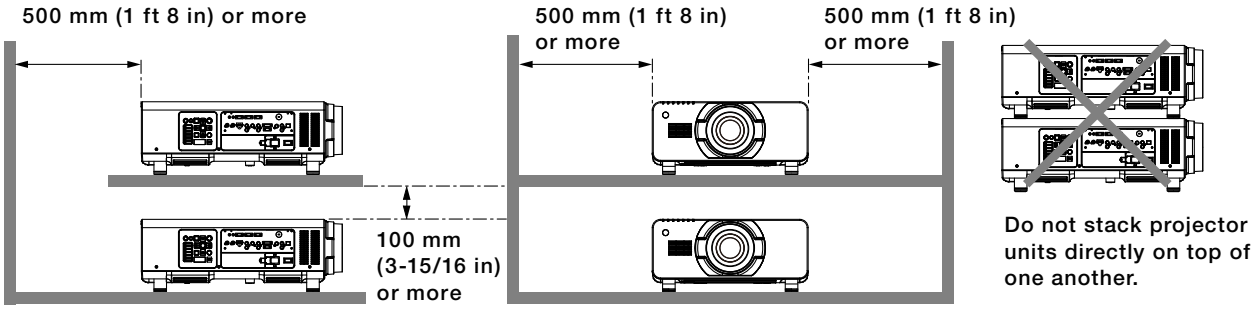
STX	ADZZ	;	OOS	:	0	ETX
Start	ID Address		Command		Parameter	End

NOTE: When sending commands without parameters, a colon (:) is not necessary.

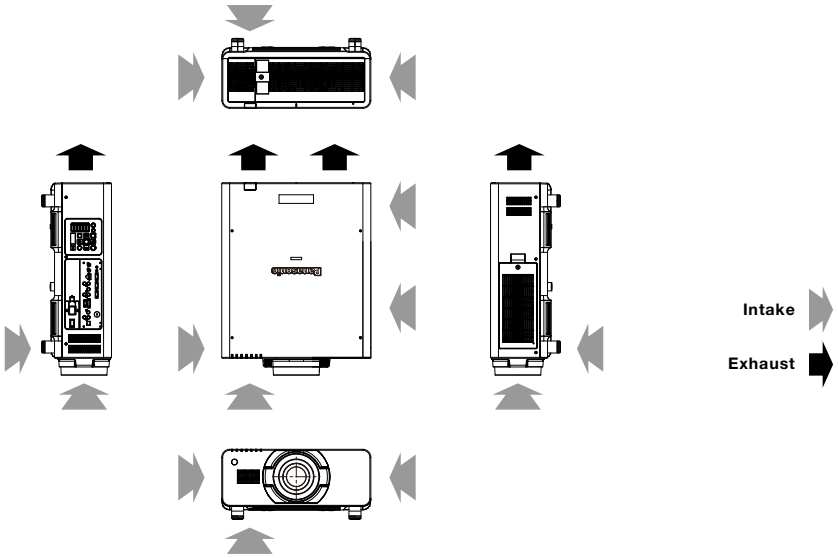
Notes on projector placement and operation

The projector uses a high-wattage lamp that becomes very hot during operation. Please observe the following precautions.

1. Never place objects on top of the projector while it is operating.
2. Make sure there is an unobstructed space of 500 mm (1 feet 8 inches) or more around the projector's exhaust openings.
3. Do not stack projector units directly on top of one another. If two units must be stacked for back-up use in ordinary projection, use a method as shown below and provide ample space between the units to ensure that exhaust heat does not accumulate near the intake opening or around the units. Dual stacked projection is not recommended.
4. Make sure that nothing blocks the projector's air intake and exhaust openings. Also, install the projector so that cool or hot air from other air conditioning equipment does not flow directly toward the projector's air intake or exhaust openings.
5. Do not install the projector in an enclosed space. If it is necessary to install it in an enclosed space, add a separate ventilation system. If ventilation is insufficient, hot air will accumulate at the intake opening. This may cause the projector's protective circuit to interrupt projector operation.
6. If the projector is installed in an enclosed space, ensure that the temperature of the air surrounding the projector is between 0°C and 40°C (32°F and 104°F). Also make sure that the projector's intake and exhaust openings are not blocked. Even though the air surrounding the projector is 40°C (104°F) or less, if hot exhaust air accumulates inside the space, it may cause the projector's protective circuit to interrupt projector operation. Pay particular attention to the surrounding temperature conditions when planning the installation.
7. If the projector is not to be set on the floor using adjuster legs, install it by using the five ceiling-mount screw holes (screw diameter: M6, length of each screw hole in the projector: 30 mm (1-3/16 inches)). Provide a space of 5 mm (3/16 inches) or more between the projector and the mounting surface by inserting metal spacers.


500 mm (1 ft 8 in) or more
500 mm (1 ft 8 in) or more
500 mm (1 ft 8 in) or more
100 mm (3-15/16 in) or more
Do not stack projector units directly on top of one another.

Direction of air intake and exhaust



Operating the projector continuously

1. If the projector is to be operated continuously one week, use the quad-lamp optical system's alternating lamp operation (lamp relay) function. The projector cannot be operated continuously one week in quad-lamp mode. Allow a minimum of two hours per day of non-operation time for each lamp if the projector is to be operated continuously for more than one week.
2. The lamp replacement cycle duration becomes shorter if the projector is operated repeatedly for short periods.

Weights and dimensions shown are approximate. Specifications and appearance are subject to change without notice.
Product availability differs depending on region and country. This product may be subject to export control regulations.

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